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100,000 in 1900, an improvement over the epidemic figure of 1899, which was 74.82. Tables of the age distribution of typhoid fever and the monthly distribution of that disease and of scarlet fever and consumption for 39 years would be rendered more helpful by the printing of totals. An addition of the figures for typhoid fever deaths by age periods for the ten years, 1891-1900, gives the following result:

Years.	Deaths.	Years.	Deaths.
Under 1	19	30-40	981
1-2	20	40-50	455
2-5	123	50-60	202
5-10	323	60-70	112
10-15	386	70-80	47
15-20	796	80-90	9
20-30	1819	90-100	1

C.-E. A. WINSLOW.

STATISTICS OF DISEASES.

The *Twenty-eighth Annual Report of the Secretary of the State Board of Health of Michigan* for the year ending June 30, 1900, contains, as usual, an interesting study of the relation of meteorological conditions to the prevalence of disease. The statistical material for this comparison is obtained from 214 medical observers who send in weekly reports of the relative prevalence of the diseases which have come under their observation, marking the disease of which most cases have been seen, one, and so on. The percentage of reports stating the presence of any disease gives for each week a sort of morbidity rate which serves very well for comparison of the different seasons. The tables show that bronchitis, pneumonia, membranous croup, diphtheria, tonsilitis, influenza, scarlet fever, rheumatism, neuralgia, pleuritis, and pulmonary consumption, or the "cold-weather" diseases, were reported on more than the average per cent of weekly reports, in months which had a relative humidity, an average per cent of cloudiness, ozone, average velocity of wind, and average range of the barometer greater than that for the year and an average daily temperature, average daily range of temperature, absolute humidity and average atmospheric pressure less than that for the year. On the contrary, the "warm weather" diseases, diarrhœa, cholera infantum, intermittent fever, remittent fever, typhoid fever, typho-malarial fever, cholera morbus, dysentery, measles and whooping cough, bear an inverse relation to all meteorological conditions cited. The monthly relations of some of the most typical diseases of the two classes are shown by the following table, abstracted from several of those given in the report.

PER CENT OF WEEKLY REPORTS IN WHICH CERTAIN DISEASES WERE REPORTED. TWENTY-TWO YEARS, 1877–98.

Cold Weather Diseases	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bronchitis..........	71	72	71	68	58	49	41	40	46	53	62	66
Pneumonia.........	49	52	50	43	32	19	12	10	13	18	27	36
Influenza......... ...	72	66	64	56	40	27	19	19	27	32	42	53
Warm Weather Diseases												
Diarrhœa...........	26	26	28	29	32	41	66	80	76	53	33	26
Typhoid Fever.....	9	7	5	4	4	5	7	13	19	21	18	12
Cholera Infantum..	3	1	2	2	3	9	27	41	33	12	3	2

Tha major portion of the Michigan report is devoted to a consideration of the communicable diseases reported during the year 1899. In connection with this work of the Board 8326 local newspapers are reviewed for information in regard to outbreaks of these diseases ; 46 per cent of the newspaper reports were confirmed by the local Health Office, and 21 per cent were denied. The statistics given for the various diseases are of the highest value, including the relation of the maladies to concentration of population, disinfection and age and sex of the patients, as well as the average incubation period, and duration of fatal cases. The importance of concentration in the case of diphtheria is shown by the death rate of 2.60 per 10,000 population in cities, of 1.32 in villages and 1.26 in townships. This relation does not hold for scarlet fever and measles. The value of isolation and disinfection is indicated by the fact that during the thirteen years, 1887-99, there were 823 outbreaks of diphtheria in which both of these precautions were neglected, with an average of 11.75 cases and 2.41 deaths per outbreak; while in 910 outbreaks in which both isolation and disinfection were enforced, the average number of cases was 2.16, and of deaths, .45. The corresponding figures for measles are 54.03 cases and .43 deaths where precautions were neglected and 2.56 cases and .02 deaths in the 248 instances in which they were thoroughly carried out. The same striking relation is shown for scarlet fever and whooping cough, and even for typhoid fever. The fatality rates at different ages for certain of the infectious diseases are of considerable interest.

DEATHS IN EACH AGE GROUP, IN PER CENTS, OF THE CASES IN THAT GROUP.

Diseases.	Age.														
	0–1	1–2	2–3	3–4	4–5	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50 and over
Diphtheria.......	79	53	43	35	28	22	13	14	7	5	3	4	6	20	—
Scarlet Fever....	26	20	13	12	4	4	2	3	2	0	8	0	0	0	0
Measles..........	28	15	7	1	2	1	1	2	1	3	0	11	4	12	5
Whooping Cough	63	32	13	6	6	2	0	4	13	0	0	0	0	0	0

It is strange that only 14 cases of pneumonia were reported to the Board during the year, with five deaths. Of meningitis, on the other hand, 1306 cases were turned in; and the returns of most of the other diseases seem to show a very satisfactory system of reporting.

The question as to the prevalence of cancer is re-opened by R. Teece in the *Journal of the Institute of Actuaries*, for July, 1901, p. 89, under the caption, "The Increase of Cancer." Mr. Teece takes issue with the conclusion reached by King and Newsholme in 1893, that the "increase in cancer is only apparent and not real, and is due to improvement in diagnosis and more careful certification of the causes of death"; and the original paper of Mr. King and Dr. Newsholme is reprinted in the same number of the Journal. It will be remembered that these authors, in the first place, emphasized the fallacy of arguing from general death-rates when dealing with a disease mainly affecting certain age periods; and they corrected all their rates for the actual age distribution of the population. In the second place, they analyzed the statistics of cancer in the city of Frankfort according to the part of the body affected and showed that the greater prevalence of cancer among females was due entirely to cancer of the sexual organs,— cancer in other parts of the body affecting both sexes equally,—and that the increase of cancer from 1860 to 1889 was due to an increase of cancer in the internal organs, while cancer of the tongue, mamma, uterus and vagina has remained stationary. This, the authors considered, pointed conclusively to the importance of more accurate diagnoses in increasing the amount of cancer. Mr. Teece has carried on the tables given by King and Newsholme, bringing the statistics of the cancer deaths by age periods for England and Wales up to 1897. The steady increase noted by the previous observers continues in a marked manner, the deaths of males over 45 having risen from 1942.4 per million in 1881-97, to 2970.6 per million in 1895-87, and that for females having risen from 2990.0 to 3923.4. Mr. Teece thinks the rise during this latter period can scarcely be accounted for by improvement in diagnosis. Finally, he submits cancer statistics for the seven Australasian colonies, which show a marked increase during the last forty years. The present rates are, however, far below those occurring in Europe. These Australasian figures are not analyzed by age periods, the author dismissing this matter with a single table, showing that in New South Wales and Victoria the increase in the proportion of the population over 45 years has been but slight. This is not quite satisfactory, for, as Mr. King pointed out in discussion, a change from a population, 87.6 per cent of which was under 45, (Victoria, 1871), to one of which 83.2 per cent was under 45 (Victoria, 1891), would raise a corrected cancer rate of 467 per million to one of 562. In the discussion of Mr. Teece's paper, Dr. Newsholme furnished an interesting table of the deaths from cancer by affected parts in Ireland in 1887-89 and 1897-99, and in Brighton in 1889-91 and 1898-1900. While the Irish statistics show an increase from .43 per 1000 to .58, those for Brighton give rates of .86 and .83. This bears out Dr. Newsholme's observation, that in communities where medical attendance is especially skilled, the cancer rate is high and stationary, while in districts like Ireland and the Australasian colonies it is rising toward the true level, as diagnosis and certification improve. It is interesting to note, however, that the Irish statistics show marked increase in cancer of certain parts where the disease is not difficult of diagnosis. Thus among males, in the periods cited, deaths from cancer of the head, face, eye, orbit, nose and ear have increased from 215 to 260, — from cancer of the jaws from 93 to 146, — of the mouth, tongue and lips from 304 to 423, — and of the neck, throat, tonsils and larynx from 216 to 292. The question as to the reality of the increase of cancer can probably only be definitely settled by the lapse of time. If Dr. Newsholme is right, the conditions as to accurate diagnosis and thorough certification which obtain at Brighton will be shortly reached by other cities, and the apparent increase of cancer will then come to a standstill.

Some valuable cancer statistics are to be found in a paper by Dr. R. Laspeyres entitled *Ein Beitrag zur Krebsstatistik* in the *Centralblatt für allgemeine Gesundheitspflege*, vol. XX, 1901, p. 342. The author analyzes the figures for certain Prussian provinces for the period 1891-95. The death rates from cancer for the five decennial age periods between thirty and eighty are compared in great detail, and the relation between a high cancer rate and the concentration of population is clearly shown. For example, the following table may be cited: —

DEATHS FROM CANCER PER 10,000 LIVING AT THE CORRESPONDING AGE PERIOD.

Age Period.	30-40		40-50		50-60		60-70		70-80		30-80	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Prussia, as a whole...	1.53	2.96	6.85	9.40	18.72	19.31	33.29	28.86	32.15	29.15	4.66	5.38
All urban districts....	2.10	4.30	10.10	14.10	27.60	28.00	51.60	41.90	55.00	47.40	6.28	7.96
Large cities..........	2.50	3.90	12.30	18.30	34.30	36.50	68.00	53.00	81.00	67.00	6.33	9.79
Cities of medium size	2.40	4.80	8.90	16.10	32.00	30.90	61.00	49.60	66.00	57.00	6.37	8.32
Small cities..........	1.60	2.80	7.60	9.80	21.00	21.20	39.40	32.10	38.00	31.00	5.34	6.34
Rural districts........	1.16	1.85	4.60	6.10	13.50	13.60	23.70	19.90	21.90	17.60	3.58	3.64

Arranged in another way, according to the density of population, the statistics exhibit the same relation, as follows:

Number of Districts.	Inhabitants per Square Kilometer.	Deaths from Cancer per 10,000 Population between 30 and 80.	
		Males.	Females.
10	14	14.1	13.3
14	26	17.1	17.0
10	80	20.1	19.4

A consideration of the statistics for the Rhine province and Westphalia shows a similar phenomena:

Character of Districts.	Number of Districts.	Inhabitants per Square Kilometer.	Deaths from Cancer per 10,000 total population.
Purely Agrarian........	38	74.6	3.1
Mainly "	23	106.0	3.5
Mixed Agrarian and Industrial...	12	172.0	3.7
Purely Industrial......	26	416.0	3.8

All these facts correspond with Newsholme's theory that the apparent increase of cancer is due simply to improved diagnosis, as medical service must be at its best in the large centres. Finally, Dr. Laspeyres' figures show that in the districts considered the female death rate from cancer is higher than the male death rate only in the age period, 30-50, while after fifty years the conditions are reversed.

The *Thirty-second Annual Report of the State Board of Health of Massachusetts* for 1900 contains a valuable review of the "Statistics of Cancer in Massachusetts," by Dr. W. F. Whitney, which furnishes another support to the theory that the increase of that disease is only apparent. Dr. Whitney concludes that, "The assumed increase is probably due to better diagnosis and registration, and until the ratio of all the deaths from cancer, over thirty years to the total mortality of the same ages has reached 8 or 9 per cent, which is shown by autopsies to be the true ratio for cancer, it is not justifiable to speak of the increase as inherent in the disease itself." Tables are given of the population and of deaths from cancer and from all causes for each of the five-year periods from 1850 to 1895, classified by decennial age periods, and the ratios of cancer deaths to the population are calculated. The final result is summarized in the following table:

INCREASE OF CANCER IN MASSACHUSETTS. RATIO OF PERCENTAGES OF 1895 TO THOSE OF 1870.

Ages	30-40		40-50		50-60		60-70		70-80		80-100	
Sex	M.	F.	M.	F.	M	F.	M.	F.	M.	F.	M.	F.
Pecentage of total mortality	2.01	1.44	1.82	1.59	1.49	1.63	1.66	1.48	1.43	1.63	1.61	1.35
Death rate	1.91	1.26	1.99	1.64	1.81	2.02	2.01	1.85	1.61	1.83	1.65	1.41

The same excess of female over male cancer deaths at the earlier age periods, which was shown in the German statistics above quoted, appears in Massachusetts, and it is further apparent that this excess at the earlier period is lessening yearly. This corresponds well with the fact that the forms of cancer principally prevalent among females at these age periods are easily diagnosable, so that a rise in the ratio of males to females was to be looked for. The final table given is as follows:

PROPORTION OF CANCER DEATH RATE, FEMALE TO MALE.

Age	30-40	40-50	50-60	60-70	70-80	80-100
1870	4.36	3.77	2.05	1.51	1.15	1.13
1895	2.92	3.27	2.23	1.40	1.31	0.98

Comparative tables for the six New England States, for Michigan, England and Wales and Austria are also given, showing the ratio of cancer to general mortality. The results extracted from the tables for the New England States (the age periods for the European States are different), are as follows:

PERCENTAGE OF CANCER DEATHS TO TOTAL MORTALITY, 1895.

States.	All Ages	Ages over 30	30-40	40-50	50-60	60-70	70-80	80-100
Maine	4.35	6.73	3.60	8.44	11.23	8.97	6.39	2.80
New Hampshire	3.80	6.01	3.27	7.86	9.02	7.77	5.60	2.67
Vermont	3.56	5.60	2.75	7.64	8.88	7.56	5.13	2.58
Massachusetts	3.49	6.58	3.10	7.54	10.37	8.86	5.64	2.72
Rhode Island	3.07	5.86	3.05	6.79	8.10	7.20	5.25	2.86
Connecticut	3.14	5.50	2.66	7.45	8.31	7.36	4.32	2.46

Of the regular statistical material in the Massachusetts report for 1900, may be mentioned a diagram of the reported mortality from diphtheria and croup, and from scarlet fever by weeks for a period of 18 years. The autumnal rise, beginning in September, just after the opening of the school term, is shown with great distinctness in the case of diphtheria and croup. The death rate from consumption in 1900 fell to 18.5, the lowest figure ever recorded and the culmination of an almost steady fall from 42.7 in 1853. In absolute number of deaths this disease for the first time takes the second place, being exceeded by pneumonia. The changes in the typhoid death rate since 1871 are equally encouraging:

TYPHOID FEVER DEATH RATE PER 10,000 POPULATION.

	1871-75	1876-80	1881-85	1886-90	1891-95	1896-1900
Mean for the Cities	8.2	4.2	5.1	4.6	3.4	2.6
Mean for the State	8.2	4.5	5.0	4.1	3.2	2.4

At the end of the report are the usual statistics as to the fatality and seasonal prevalence of the infectious diseases, which are always of interest. The fatality rates given are as follows: Diphtheria, and croup, 10.2; scarlet fever, 5.3; typhoid fever, 16.5; measles, 1.7. It may be noted that the diphtheria rate has fallen to 10.2, from 11.6, the lowest previous figure, while the fatality rates of scarlet fever and measles have increased, and the reported cases of diphtheria have nearly doubled as compared with 1899. In the pre-antitoxin period, 1891-94, the diphtheria fatality ranged between 23.5 and 31.7. In 1895 it was 18.9, and the fall has been uninterrupted since.

A paper by Dr. W. H. Symons, entitled "Statistics Concerning Consumption and Other Preventable Diseases," in *Public Health* for June, 1901, reviews some of the registration figures for England and Wales and for three English counties. The author points out that while the total number of men killed in action or dying in the service of the army during the seven years' war with France, 1793 to 1800, was 48,971, and while the total reported loss by wounds and disease in the South African war up to the end of 1900 was 12,158, consumption killed 60,139 persons in England and Wales in the year 1898 alone. The distribution by age periods makes the serious nature of the disease still more obvious. While the percentage of deaths from tuberculosis to total deaths in 1889-90 was only 12.7 for all ages, it was 42.8 between 15 and 25, and 40.2 between 25 and 35. It is, of course, true, that the death rate is decreasing, but it is interesting to note that the decrease is mainly in tuberculosis of the lungs among adults.

REDUCTION PER CENT IN MORTALITY FROM TUBERCULOSIS, 1861-70 AND 1891-97.

	All Forms.		Lungs.		Bowels.		Brain	
	M.	F.	M.	F.	M.	F.	M.	F.
All Ages	31	42	35	49	23	24	39	31
Children under 1 Year.	15	15	55	58	4*	1	42	40

* Increase.

These statistics, exhibiting a stationary rate of tubercular disease of the intestines among children, are used by Dr. A. Newsholme in an article on "Tuberculosis in Relation to Milk Supply," in the same periodical, as an argument in favor of the belief that cow's milk is an important factor in the spread of intestinal tuberculosis. He points out in this connection the striking fact that, while only 3.6 per cent of the deaths from consumption of the lungs occur in children under 5, 78.2 per cent of the deaths from consumption of the bowels occur at that age-period. These English statistics are certainly striking; but the maintenance of a high death rate from tabes mesenterica in children is not a constant factor in other countries.

The *Lancet*, for August 10, 1901, contains a paper on "The Mortality from Phthisis and from other Tuberculous Diseases," by T. E. Hayward, in which a calculation is made of the increased expectation of life which would ensue if the diseases named were eliminated from the causes of death. Life tables are calculated on this basis for the periods 1851-60 and 1881-90.

It appears that the expectation of life at birth during the second period would have been increased a little over two and a half years if there had been no deaths from phthisis and over 3.7 years if there had been no deaths from any tuberculous disease. Between the ages of 2 and 10 the increase by the elimination of phthisis would have been over 3 years.

TOTAL LIFE CAPITAL IN YEARS IN ENGLAND AND WALES AT THE MIDDLE OF THE YEAR, 1891.

Total Life Capital.	Increase due to Elimination of	
	Phthisis.	All other Tubercular Diseases.
Males 509,090,868	31,333,250	2,918,312
Female 561,118,572	28,344,687	2,946,730

A review of "The Outbreak of Small-Pox in London" by Dr. William R. Smith in the *Journal of State Medicine*, for November, 1901, quotes the statistics as to small-pox cases admitted to the hospitals of the Metropolitan Asylums Board from 1890 to 1900. During this period there were 1247 admissions of this disease and 176 deaths; only 177 of the cases and two of the deaths were among children exhibiting evidence of proper vaccination. The proportion of vaccinated children in London is reckoned by Dr. Smith at 70 per cent, so that the reduction of mortality is very striking. The difference in fatality rates between 16.3 for the unvaccinated and 1.1 for the vaccinated, is, at any rate, convincing.

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COST OF HOME-COOKED AND PURCHASED FOOD.

In 1898 the Committee on Domestic Service of the Boston Branch of the Association of Collegiate Alumnæ undertook a consideration of the possibility of having more housework done outside the home. Investigations were begun in laundry work, cleaning, and foods, but the Committee soon found it wiser to confine their work to but one of these subjects at a time, and that of foods was chosen as the most important. At first the attempt was made to get at the desired in-